

## **NERRS Science Collaborative Progress Report for the Period 9/1/12 through 2/28/13**

**Project Title:** Integrating Socio-Ecological Research and Collaborative Learning to Promote Marsh and Community Resilience

**Principal Investigators:** Brian Needelman, Michael Paolisso, Patricia Delgado, Lisa Wainger, Paul Leisnham, Andrew Baldwin, Robert Tjaden

**Project start date:** 9/1/12

**Report compiled by:** Brian Needelman

### **Contributing team members and their role in the project:**

Project coordinator: Brian Needelman

Collaboration lead: Michael Paolisso

Fiscal agent: Robert Tjaden

Applied science investigators: Patricia Delgado, Chris Snow, Lindsay Carroll, Sasha Land, Coreen Weilminster, Lisa Wainger, Paul Leisnham, Andrew Baldwin, Donald Webster, Erin McLaughlin, Kevin Smith, Patrick Megonigal, Christine Conn, Sean McGuire, Roman Jesien

Intended user representatives: Captain Stoney Whitelock, Roy Ford, Michael Cantwell, Steve Strano, Susan Adamowicz

## **A. Progress overview**

The goals of this project are to: 1) Establish a continuing collaboration among local community, state and federal agency, academic, and non-governmental organization stakeholders working towards the resilience of the marshes and local communities of the Deal Island peninsula; 2) Develop and test a broadly transferable process of engaging stakeholders to optimize and implement strategies that restore and conserve marshes and local communities; and 3) Better understand the provision of socio-ecological services by marsh systems and decision-making processes within the stakeholder community using integrated anthropological, economic, and ecological applied science.

During the first project period, we planned to conduct meetings with the full project team and with stakeholders, both of which have been completed. We had planned to hold our first stakeholder workshop, this was postponed to early April to give us more time to prepare and select workshop participants. We planned to collect and analyze ecological field data—we have installed most of our field equipment and collected and begun the analysis of data on hydrology, vegetation, mosquitoes, and soils.

## **B. Working with Intended Users**

- **Describe the progress on tasks related to the integration of intended users into the project for this reporting period.**

We have identified and integrated into the project representatives from communities on the Deal Island peninsula and from stakeholder groups interested in ditch-drained marsh restoration. In two meetings in the communities, we worked with the Deal Island-Chance Lion's Club and Skipjack Heritage, Inc., a local NGO, to identify seven community members who will participate in the workshops and work with the science collaborative team. These seven participants are in turn identifying three to five additional community members who will also participate in the workshop. These additional members represent interests and expertise in the communities that we would like to have represented in the project. We have also completed an initial listing of project participants who represent key local, county, state and federal organizations. We are developing criteria to help us select these other intended users. The intended user

representatives from stakeholder groups interested in ditch-drained marsh restoration have participated in three meetings held by the project's restoration team and have provided valuable input and critique into our decision-making process regarding restoration options and outcomes.

- **What did you learn? Have there been any unanticipated challenges or opportunities?**

We have learned that community members are excited about the project and interested in the focus and process of the project. As we had expected, community project participants were not able to fully understand the focus and activities of the project. We did not see this as a problem, but rather as the beginning/ baseline for collaborative learning. We feel there is good rapport with the community participants, and a sense that the project's goals are consistent with their interests (or at least not in conflict).

- **Who has been involved?**

The collaboration team includes Michael Paolisso, Brian Needelman, Robert Tjaden, Katherine Johnson (PhD student in anthropology), Sasha Land, and Lisa Wainger. In addition to these project members, Pati Delgado and Chris Snow attended one of the community meetings.

- **Has interaction with intended users brought about any changes to your methods for integration of intended users, the intended users involved, or your project objectives?**

To date, the interaction has not resulted in any changes to our methods.

- **How do you anticipate working with intended users in the next six months?**

By the middle of March, we will complete the involvement of community and local, county, state and federal stakeholders into the workshops, which should number about 20 individuals total. Add to this the approximately the collaborative science team members and a few additional applied scientists and we have the group that will participate in workshops (n=30+/-). This group will participate in the project's first workshop in April. On an almost weekly basis, we will be meeting with and/or interviewing community participants to advance our understanding of some of the marsh and community issues related to questions about socio-ecological resilience. In the first workshop, we will use collaborative learning methods to elicit knowledge and values related marshes and communities. The intended user representatives from stakeholder groups interested in ditch-drained marsh restoration will continue to work with the project's restoration team.

### **C. Progress on project objectives for this reporting period:**

- **Describe progress on tasks related to project objectives for this reporting period.**

During the reporting period, we conducted one full project team meeting during which every participant gave a short presentation covering their role in the project. We also have had meetings of the five subgroups of the project team: collaborative learning, ecology, anthropology, economic, restoration, and a coordinating committee. The restoration team has held three meetings (with intended user representatives) and has had significant discussions regarding restoration options and outcomes. The collaborative learning team has held several meetings including two meetings with intended user representatives and

potential collaborative learning workshop participants. We postponed our first stakeholder workshop to early April to give us more time to prepare and select workshop participants. This has postponed related post-workshop activities including experiential learning activities and anthropological and economic data collection. We have conducted anthropological and economic preliminary work to tailor methods and materials to the case study. We have made significant progress on the ecology research, primarily because this work began one-year prior to the initiation of the project through the assistance of two small seed grants. To date, we have collected data, performed laboratory analyses, and begun the analysis of data on hydrology, vegetation, mosquitoes, and soils (see following section). We have also completed the installation of the following field equipment at our field sites: wells and water-level loggers, salinity loggers, piezometers, vegetation/mosquitoes/soils plot markers, surface elevation tables, and weather stations.

- **What data did you collect?**

Our ecological field data collection and laboratory analyses have included:

- Water level and salinity (continuously logged)
- Vegetative species composition and cover
- Aboveground biomass
- Belowground productivity (using root in-growth cores)
- Mosquito larval density and species
- Soil horizonation (to one meter)
- Soil water content and bulk density
- Soil carbon and nitrogen content
- Soil texture and grain size analysis

- **Has your progress in this period brought about any changes to your methods, the integration of intended users, the intended users involved or the project objectives?**

The process of stakeholder recruitment for our collaborative learning workshop has developed since our initial project proposal. We have found that there are more stakeholders that would be worthy participants than we have space in the workshop (maximum of about 20); we are therefore spending time develop criteria for stakeholder selection to optimize this component of the collaborative learning process.

- **Have there been any unanticipated challenges, opportunities, or lessons learned?**

The postponement of our first workshop was not anticipated in our initial project proposal. We under-appreciated the time it would require to prepare for this meeting and to select and recruit workshop participants.

- **What are your plans for meeting project objectives for the next six months?**

We will hold our first and second collaborative learning workshops, which will allow for the initiation of economic and anthropological data collection. We will select our three focus socio-ecological services at the second workshop, which will allow us to initiate the integrated anthropological, economic, and ecological research on these services (including geospatial analyses, experiential learning, and outreach material development). We will continue to collect ecological field data and conduct laboratory analyses and add the following to our 2012 data set: nekton, birds (waterfowl and breeding), and channel and porewater water quality (nutrients,

suspended sediment, porewater sulfides, salinity). Our elevation survey will also be conducted during this project period. The restoration team will continue to meet and plans to make decisions on restoration strategy and apply for permits during the next six months.

**D. Benefit to NERRS and NOAA**

These project outcomes are not scheduled to be produced until later in the project timeline.

**E. Describe any activities, products, accomplishments, or obstacles not addressed in other sections of this report that you feel are important for the Science Collaborative to know.**

None